



Science Fair Kits



Egg Drop Kit
GP00029

Challenge:

Protect this egg! Use the supplied materials to create a safe enclosure for an egg (egg not included). Design your packaging. Document and test your design. Communicate your results!

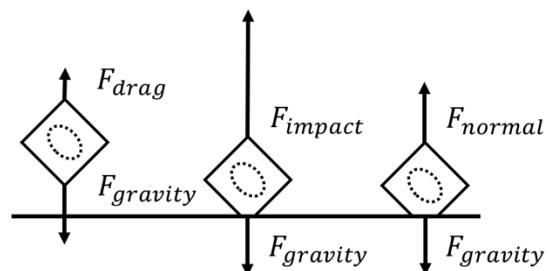
Design:

Think through the various packaging elements. Which elements conform to curved surfaces? When elements have built in cushioning? How can you engineer additional cushioning? Which elements provide structural strength? What might happen if your design hits a corner? An edge? A flat face? Do you need the box? Is your design repeatable – that is, can you take it apart, check the egg and easily repackage it?

Packaging ideas:



Free fall During impact After impact



Free body diagrams

Document:

Once you've thought through your design, take photographs, layer-by-layer as you construct your protective system.

Test:

Test your packaging by performing an industry standard drop test: drop the box from 30" on each face (6 drops), on the shortest and longest edge (2 drops), on a corner (1 drop), and on the glue seam edge of the box (1 drop). If your egg survives, drop the box from increasingly higher heights until the egg breaks. If you exceed your ability to reach, work with a parent to safely drop the box from higher locations: top of a playground, out of a 2nd floor window, down an apartment building staircase, etc.

WARNING Be careful not to drop your package on another person! **WARNING**

Communicate:

Describe your experiment, design, and test, and consider the following follow-up questions. How could you improve your packaging system? What modifications could you make to the box? How could you reduce the weight or dimensions of your packaging system? Is your packaging system able to accommodate multiple eggs? What changes would you need to make to do that? How can you increase the convenience of your packaging solution without jeopardizing the safety of your egg?

Check out a short video about this kit: <https://youtu.be/DiodeSnUm9Y>